UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DIVISION OF AGRICULTURAL ENGINEERING

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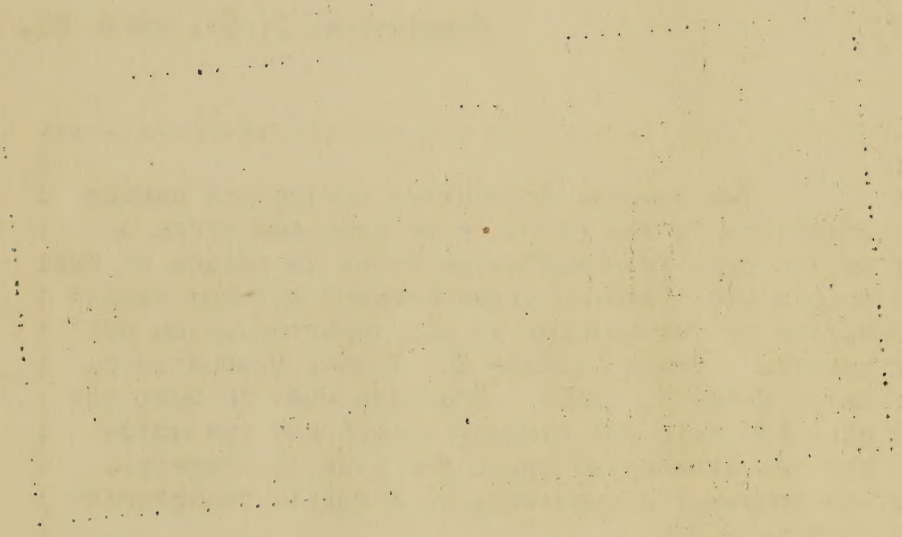
MONTHLY NEWS LETTER

WASHINGTON, D. C., APRIL 20, 1929

THE GENERAL ACCOUNTING OFFICE HAS CALLED ATTENTION TO THE PRACTICE OF SOME EMPLOYEES OF PAYING CASH TRANSPORTATION FARES IN EXCESS OF ONE DOLLAR AND CLAIMING REIMBURSEMENT WITHOUT EXPLANATION OF THE FAILURE TO USE TRANSPORTATION REQUESTS. SEE PARAGRAPH 20, TRAVEL REGULATIONS, DATED MARCH 1, 1929. REQUESTS MUST BE USED NOT ONLY FOR RAIL AND STEAMER TRAVEL BUT FOR MOTOR BUS TRANSPORTATION WHERE THE LINE IS OPERATED, AND COMMONLY RECOGNIZED, AS A PUBLIC TRANSPORTATION FACILITY.

S. H. McCRORY LEFT WASHINGTON FOR AN INSPECTION TRIP ON APRIL 11, GOING FIRST TO TOLEDO, OHIO FOR A CONFERENCE WITH MR. GRAY REGARDING THE CORN BORER CONTROL WORK. FROM TOLEDO MR. McCRORY PROCEEDED TO IOWA CITY, TO CONSULT WITH D. L. YARNELL RELATIVE TO WORK ON HYDRAULIC PROJECTS IN PROGRESS THERE. MR. McCRORY THEN VISITED GUTHRIE, OKLA., TO INSPECT THE PROGRESS OF THE SOIL EROSION PROJECT BEING CONDUCTED UNDER THE IMMEDIATE DIRECTION OF C. E. RAMSER. FROM GUTHRIE MR. RAMSER ACCOMPANIED MR. McCRORY TO HAYES, KANSAS, AT WHICH POINT WILL BE ESTABLISHED THE FOURTH SOIL EROSION PROJECT TO BE CARRIED ON UNDER THE SPECIAL FUND MADE AVAILABLE BY CONGRESS AT THE LAST SESSION. MR. McCRORY THEN PROCEEDED TO OGDEN, UTAH, IN CONNECTION WITH THE BEAR RIVER PROJECT WHICH L. M. WINSOR IS CARRYING ON FOR THE BIOLOGICAL SURVEY.

TEMPLE, TEXAS HAS BEEN SELECTED AS THE SITE FOR A NEW PROJECT RELATING TO THE CONTROL OF SOIL EROSION. A TRACT OF LAND HAS BEEN SECURED ADJOUNING THE EXPERIMENTAL FARM OF THE TEXAS A. & M. COLLEGE.



THE NECESSARY EQUIPMENT IS BEING CONCENTRATED AT TEMPLE TO ENABLE THE WORK TO BE STARTED AT ONCE. R. A. NORTON, WHO HAS BEEN ASSISTING C. E. RAMSER ON THE GUTHRIE, OKLAHOMA PROJECT, HAS BEEN MOVED TO TEMPLE IN CONNECTION WITH THIS PROJECT. IN THE NEAR FUTURE SOIL EROSION INVESTIGATIONS WILL BE IN PROGRESS AT RALEIGH, N. C., GUTHRIE, OKLA., TEMPLE, TEXAS, AND HAYES, KANSAS.

A. T. MITCHELSON REPORTS THAT HE HAS JUST RECEIVED INFORMATION FROM THE IMPERIAL IRRIGATION DISTRICT INDICATING THE SUCCESS OF THE DISTRICT'S EFFORTS TO BUILD A DITCHING MACHINE TO HANDLE THE CONSTRUCTION AND MAINTENANCE OF DRAINAGE DITCHES IN THE VALLEY.

WHEN MR. MITCHELSON WAS IN THE IMPERIAL VALLEY LAST NOVEMBER, THE MACHINE WAS NOT COMPLETE BUT SINCE ABOUT THE FIRST OF THE YEAR IT HAS BEEN IN OPERATION AND HAS EVEN SURPASSED THE EXPECTATIONS OF THE BUILDERS. IT IS BUILT SOMEWHAT ON THE ORDER OF THE WHEEL TYPE DITCHER, THE WHEEL TO WHICH THE BUCKETS AND CUTTING TEETH ARE ATTACHED BEING APPROXIMATELY 16 FEET IN DIAMETER. THE MACHINE CAN CUT A DITCH TO A MAXIMUM DEPTH OF 10 FEET. DIFFERING FROM THE ORDINARY DITCHER OF THE TYPE WHICH HAS THE AXIS OF THE DIGGING WHEEL AT RIGHT ANGLES TO THE CENTER LINE OF THE DITCH, THIS MACHINE HAS AN ADJUSTABLE FRAME SUPPORTING THE WHEEL WHICH PERMITS THE AXIS OF THE WHEEL BEING SHIFTED TO ANY ANGLE FROM 90 DEGREES TO PARALLEL WITH THE CENTER LINE OF THE DITCH. IN THIS WAY THE SIDE SLOPES OF THE DITCH MAY BE MADE TO VARY FROM PERPENDICULAR TO THE IDEAL SECTION FORMING AN ARC OF A CIRCLE.

DRAINAGE DITCHES HAVE BEEN BUILT WITH THIS MACHINE DURING THE PAST SEVERAL MONTHS, THE DEPTHS OF WHICH RANGED FROM 6 TO 8 FEET, THE FIELD COST OF MOVING DIRT ESTIMATED AT ABOUT $1\frac{3}{4}$ CENTS PER CUBIC YARD, AND THE OVERALL COST OF 5 CENTS PER CUBIC YARD. THE 6-FOOT DITCH COST COMPLETE ABOUT $500 PER MILE AND THE 8-FOOT DITCH $600. IT SHOULD BE UNDERSTOOD THAT IN DEEPER CUTS THE MACHINE TRAVELS OVER THE DITCH ABOUT FOUR TIMES FOR THE 6-FOOT CUT AND ABOUT 6 TIMES FOR THE 8-FOOT CUT.

MR. MCLAUGHLIN OF THE BERKELEY OFFICE MADE TWO SHORT TRIPS DURING THE MONTH, ONE INTO IMPERIAL VALLEY TO STUDY THE POSSIBILITY OF SUPPLEMENTING THE DRAINAGE SYSTEM OF THE IMPERIAL IRRIGATION DISTRICT AND LATER TO THE MOJAVE DESERT TO MAKE A BRIEF PRELIMINARY SURVEY OF THE POSSIBILITY OF EXTENDING THE IRRIGATED AREA IN THE VICINITY OF HODGE, SAN BERNARDINO COUNTY. H. F. BLANEY AND PROFESSOR W. W. WEIR OF THE UNIVERSITY OF CALIFORNIA ACCOMPANIED MR. MCLAUGHLIN TO IMPERIAL VALLEY.

THE BERKELEY OFFICE HAS RECEIVED A PROGRESS REPORT ON IRRIGATION AND DRAINAGE, BAKER VALLEY, BAKER COUNTY, OREGON, BY M. R. LEWIS.

D. G. MILLER RECENTLY MADE A HURRIED INSPECTION TRIP TO THE WOLF RIVER COUNTRY IN WISCONSIN. A SEVERE FLOOD IN THAT VALLEY HAS RENEWED THE INTEREST OF THE LANDOWNERS IN SECURING PROTECTION FROM RECURRING FLOODS.

W. M. Hurst left Washington April 15 for a brief trip to the southeastern States to confer with the college heads of the departments of agricultural engineering with reference to a proposed cooperative project dealing with the subject of the application of machinery to the growing of southern crops. This is expected to become one of the major projects of the division.

Mr. Hurst has recently completed three brief manuscripts for publication as follows: "Operation and Care of the Combined Harvester-thresher" to be published as a Farmers' Bulletin: "Drying Hay by Forced Draft with Heated Air", submitted for publication in the Journal of Agricultural Research; and "Drying Grain by Forced Draft with Heated Air", to be rotoprinted.

R. B. Gray has submitted a manuscript by O. K. Hedden giving an account of the experiments so far made on the development of a mobile tractor type of field burner for corn borer control. Four types of burner have been designed by the division in an effort to perfect a device capable of destroying at an economical cost, the European corn borer in husked standing corn. In addition a number of commercial burners were tested under field conditions. The results so far secured have been only partially successful.

Recent heavy rains in the vicinity of Washington caused high water in the Potomac River which threatened to flood a portion of Arlington Experiment Farm. To prevent this L. A. Jones and F. E. Staebner were detailed to advise regarding the construction of a levee about 300 feet long which will provide protection against overflow from the present flood. Further levee construction will be necessary to furnish complete protection.

A. T. Mitchelson made a short trip into San Joaquin Valley, California to see a modified Ruth Dredger operating on some of the ditches of the Fresno Irrigation District.

During the month of March, J. C. Marr visited Moscow, Idaho to confer with officials of the University of Idaho with reference to the cooperative alkali reclamation project near Caldwell, Idaho.

Professor G. E. P. Smith, Irrigation Engineer of the University of Arizona visited the work in southern California during the month and stated that the University of Arizona was inaugurating similar research investigations in citrus irrigation and wished to avoid a duplication of work.

Carl Rohwer reports that tests of a small aspiration psychrometer used in determining the vapor pressure of the air for the experiments on the evaporation from ice showed a mean difference of $2\frac{1}{2}$ per cent, and a maximum difference of 9 per cent when compared with the Alluard dew point hygrometer. Since the vapor pressure of the air is small at temperatures below freezing the percentage of error caused by small deviations in the vapor pressure is quite large, but the results

OF THE COMPARISON INDICATE THAT SATISFACTORY RESULTS CAN BE OBTAINED WITH THE ASPIRATION PSYCHROMETER EVEN AT LOW TEMPERATURES.

THE PLANS AND SPECIFICATIONS FOR THE BEAR RIVER MIGRATORY BIRD REFUGE WERE COMPLETED DURING THE MONTH AND WERE FORWARDED TO WASHINGTON AND TO LOGAN FOR FINAL CONSIDERATION. BOTH PLANS AND SPECIFICATIONS WILL BE FINALLY PASSED ON AT A CONFERENCE AT LOGAN DURING APRIL.

ON APRIL 26, THERE WILL MEET AT WASHINGTON THE ADVISORY COUNCIL SET UP IN CONNECTION WITH THE PROJECT RELATING TO FARM MECHANICAL EQUIPMENT RESEARCH. THE PURPOSE OF THE MEETING IS TO DECIDE UPON A FUTURE PROGRAM IN THIS CONNECTION. THE COUNCIL IS COMPOSED OF REPRESENTATIVES OF THE DEPARTMENT, THE NATIONAL ASSOCIATION OF FARM EQUIPMENT MANUFACTURERS, AND THE AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS.

D. L. YARNELL VISITED THE WASHINGTON OFFICE RECENTLY UPON RETURN TO HIS HEADQUARTERS FROM THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY AT BOSTON, WHERE HE ATTENDED LECTURES BY PROFESSOR REHBOCK OF GERMANY.

A. H. SENNER HAS COMPLETED PLANS FOR HEATING, LIGHTING AND PLUMBING FOR THE DIRECTOR'S RESIDENCE AT THE BUREAU OF FISHERIES STATION BEAUFORT, NORTH CAROLINA.

G. M. WARREN HAS BEGUN A STUDY OF SEPTIC TANKS AND OTHER SEWAGE DISPOSAL METHODS, WITH PARTICULAR REFERENCE TO ONE-CHAMBER TANKS. HE INTENDS TO STUDY SOME OF THE OLD INSTALLATIONS AS WELL AS THE NEW ONES FOR THE PURPOSE OF DETERMINING HOW THEY ARE WORKING. HE IS NOW ON A FIELD TRIP THROUGH SOME OF THE SOUTHERN STATES INCLUDING VIRGINIA, ALABAMA AND TEXAS, AND WILL ALSO VISIT KANSAS, MINNESOTA, ILLINOIS, PENNSYLVANIA AND NEW YORK.

M. C. BETTS ATTENDED A MEETING AT CHICAGO, OF THE FIRE PROTECTION COMMITTEE OF THE NATIONAL FIRE PROTECTION ASSOCATION. WHILE IN CHICAGO HE VISITED SOME OF THE MANUFACTURERS OF BARN EQUIPMENT.